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ABSTRACT

This study examined the effects of misleading information on children's memory for a real-life event. In play sessions involving an experimenter, 36 6-year-olds and 36 9-year-olds individually participated by playing games with a research assistant. In the sessions, six critical items were present: two items identified the room; two identified the experimenter; and two identified the action. After 2 weeks, children returned and were read a narrative containing four pieces of suggested information and two pieces of novel information they were not exposed to during the first session. Items used in the play session about which the researcher tried to mislead the child (misled event items) were inaccurately described in the narrative by the experimenter. Then the exprimenter showed the children items from the play session (event items) and the narrative (suggested items), and novel items; and asked whether they remembered seeing these items in the play session. There was no difference in responses by age. Children responded more accurately on control event items than misled event items. Memory impairment effects were found for person and room information but not for action information. In a free recall task, there was a significant difference in older children's memory of control and misled items. In a prop selection task, children at both ages chose a higher porportion of control event items over misled event items. Eight references are cited. (BC)

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The Effects of Misleading Information on Children's Memory For a Real-Life Event

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The present study examined the effects of misleading information on children's memory for a real-life event. We addressed the following questions: 1) Does misleading information affect children's memory performance? 2) Is the influence of misleading information age-dependent? 3) Are some types of information more susceptible to memory impairment than others? 4) Does the type of test employed affect whether misinformation effects are found?

Past research on children's memory impairment has resulted in contradictions concerning how or if inaccurate information can impair memory, and if the influence is age-related. Although Zaragoza (1987) and Zaragoza and Wilson (1989) have repeatedly found no misinformation effects on memory when testing 3- and 6-year-olds, Ceci, Ross, and Toglia (1987) found age-dependent effects of misinformation, in which 3-year-olds showed a greater decrease in memory performance than older children. The present study attempted to further our understanding of children's memory stability and to determine what factors can change the degree to which impairment is found.

In addition to examining age-related influences, we also examined memory impairment for three different types of information, specifically, room, person, and action information. Past research in our laboratory indicated that action information is often more resistant to suggestion than room and person information (Goodman, Bottoms, Schwartz-Kenney, & Rudy, 1991). Several other researchers have also found that action information is particularly well remembered. Perhaps action information would also be less resistant to misleading information compared to person and room information.

We were also interested in examining the presence of misinformation effects across different testing procedures. We included a yes/no recognition task, a free-

recall test, and a prop-selection task (for the latter test, children tried to select from a box the items originally seen).

Finally, rather than viewing briefly seen pictures, as is typical in memory impairment studies, we had children participate in a play session in order to extend research on memory impairment to the study of real-life events. When children testify in courts, they often do so about events in which they have actively participated. Therefore, using a real-life event fosters greater applicability to issues concerning children's eyewitness abilities.

In the present study, 36 6-year-olds and 36 9-year-olds individually participated by playing games with a research assistant. The games included playing with playdoh, a puzzle, and a connect-the-dots picture. Six critical items were present during the play session, two critical items for each type of information category (e.g., for person information, the research assistant wore a pin and a T-shirt, both of which were critical items; for room information, the room had a piece of fruit and a piece of silverware on the desk where the child and assistant played, both of which were critical items, and so forth). In addition, a 6-ft inflatable Gumby (a cartoon character) was placed in the room to serve as a reference for later questioning. The play session lasted approximately 15 - 20 minutes.

After two weeks, the children individually returned. They were each told that someone was going to ask them what games they liked the best when they played in the Gumby room and whether children younger than themselves would enjoy playing the games they played. Next, they were told that to help them remember everything they did and saw in the Gumby room, the researcher would go over everything with them. Within the narrative read to the children, there were four pieces of suggested information and two pieces of neutral information.

Next, the child was brought into the interviewing room. First, the yes/no recognition test was given. The interviewer showed the child one item at a time, and asked the child if it was something she or he remembered seeing in the Gumby room. For the yes/no test, subjects were then shown items from the play session (event items), items from the narrative (suggested items), and novel items they were not exposed to in either the play session or the narrative. Of course, from the start, all the items had been counterbalanced as event items, suggested items, and novel items.

This was followed by the free recall task in which subjects were asked to tell the interviewer everything they could remember about what they did and saw in the Gumby room. Finally, for the prop-selection task, children were asked to go through all the items in a large box and pick out the items they remembered seeing when they played in the Gumby room.

Before the results are discussed, it is important to clarify the terminology used. "Event item" refers to an item that the child actually viewed in the Gumby room. A "misled event item" was an item actually seen in the Gumby room but that the researcher tried to mislead the child about. So, if the child saw a banana in the Gumby room and the researcher said is was an orange, the banana would be the misled event item; the orange would be the "suggested item." If the same child saw the researcher wearing a circle pin but in the narrative the child simply heard that the researcher was wearing a pin (neutral information), the circle pin would be the "control event item."

The influence of inaccurate, suggested information on children's performance on the yes/no task was examined in a 2 (age) X 2 (item group) X 3 (type of information) ANOVA. Both item group and type of information were within-subject factors. First, we analyzed proportion correct responses to

determine if suggested information suppressed children's memory for event details. Notice we used the word suppressed: These data are not commission errors of saying "yes" to suggested items but rather are proportions of saying "yes" correctly to event items. There were no significant effects or interactions associated with age. Both 6- and 9-year-olds' performance was virtually the same. However, there was a significant main effect of item group, $F(1, 70) = 51.55$, $p < .01$. Children's performance was significantly better on control event items, $M = .91$, compared to misled event items, $M = .68$ (see Figure 1). A significant main effect of type of information also emerged, $F(2, 69) = 39.31$, $p < .01$, as well as a significant interaction between item group and type of information, $F(2, 69) = 13.32$, $p < .01$. Simple effects analyses revealed significantly better performance on control items versus misled items for person information, $F(1, 71) = 32.15$, $p < .01$, and for room information, $F(1, 71) = 19.88$, $p < .01$, but not for action information (see Figure 2).

We also examined how successfully subjects rejected incorrect items across item group. If children's memories for event items are confused with suggested items, subjects should have greater difficulty rejecting suggested items versus control novel items. Children rejected control novel items, $M = .89$, significantly better than suggested items, $M = .73$, $F(1, 70) = 29.95$, $p < .01$ (see Figure 3), and this was true for all types of information, all F's $(2, 69) = 3.95$, $p < .05$, although the mean difference was quite small for action items. Accuracy was still 92% correct for misled action items (see Figure 4). There were no significant age effects.

McCloskey and Zaragoza claimed that the typical way of assessing memory impairment, as pioneered by Loftus, does not control for response bias and/or lack of encoding of event details. However, we included an analysis introduced by Belli (1989), that combined performance on event and novel items, and that Belli

claims eliminates the influence of response bias and lack of encoding. Memory impairment still emerged. Children were significantly better at recognizing control items, M = .90, versus misled items, M = .79, $F(1, 70) = 31.48$, $p < .01$ (see Figure 5). Analyses of simple effects revealed significantly better performance on control event and novel items combined compared to misled event and novel items combined for person items, $F(1, 71) = 26.06$. $p < .01$, and room items, $F(1, 71) = 4.74$, $p < .05$. Once again, the significant difference only held true for person and room items, not for action items (see Figure 6).

Item analyses and signal detection analyses all lead to the same basic result, namely that significant impairment effects were found for person and room information but not for action information.

We now turn to children's performance on the free recall task. First, we were interested in whether the proportion of correct control event items recalled would be higher than the proportion of misled event items recalled. In other words, would misinformation suppress event memories during free recall? Not surprisingly, we found a main effect of age: 9-year-olds, M = 22, recalled more than 6-year-olds, M = 11, $F(1, 70) = 5.49$, $p < .05$. For older children, there was a significant difference between control and misled items, $F(1, 70) = 6.27$, $p < .05$, but this difference was not significant for 6-year-olds (see Figure 7). Thus, we uncovered a reverse developmental trend, with the older children but not the younger children showing a deficit as a result of misinformation. Note that the deficit reflects the suppression or omission of event information, not commission errors. The lack of effect for the younger children may have been due in part to the fact that they recalled little information. Also of note, there were no significant differences for any of the types of information alone (see Figure 8).

Next, we examined incorrect responses on the free recall task. Would the children recall the items that were suggested to them during the narrative? There were no significant effects for age, item group, or type of information, all F's(1, 42-45) < 2.01, all F's(1, 68) < 2.12, respectively. The children recalled very little incorrect information (see Figure 9).

In summary, the free recall data indicated that misinformation caused the older children to report fewer misled event items than control event items, although these findings did not hold true for 6-year-olds. Moreover, misinformation rarely resulted in recall of suggested information.

Finally, children's performance on the prop-selection task was analyzed to determine if misinformation effects would be found when children actively selected the items at test. A misinformation effect was found in that children chose a significantly higher proportion of control event items, M = .82, compared to misled event items, M = .64, F(1, 70) = 23.34, p < .01, regardless of age (see Figure 10), but the effects were only significant for person and room information, not for action information (see Figure 11). These results indicate suppression of event information. When proportion incorrect served as the dependent measure, the only significant finding was a main effect of item group for person information, F(1, 45) = 7.04, p < .05. In summary, on the prop-selection task, misinformation resulted in suppression of event information. It resulted in commission errors for person information only (see Figure 12).

Overall, the findings from the present study support the view that exposure to misinformation precipitates memory impairment in children. However, misinformation effects were most likely to result in suppression of event information than commission errors, although on some tasks commission errors were found. Moreover, it was more difficult to obtain misinformation effects for

action information than for person or room information. Furthermore, age did not influence the presence of misinformation effects on the initial yes/no recognition interview or the final prop-selection test, and surprisingly, reverse age effects were found for free recall.

Although action information was more resistant to misinformation effects than person or room information, this pattern could probably be altered depending upon the level of detail queried, the delay before testing, salience of the information, etc. However, it should be noted that we did not try to mislead the children about the main actions (e.g., whether they did connect-the-dots versus something else) but rather about a detail of the actions. It is possible that children would be even more resistant to misleading information about the central actions themselves.

The type of information effects might also have been due to the use of a real-life event. Real-life events tend to provide a rich stimulus environment in which certain details need to be attended to more than others. Although in the course of the event, the assistant pointed out every critical item to the child, the child may have more actively attended to the action information (although, interestingly, it was in view for less time than the person and room information).

Also, although our findings do not help us differentiate between various theories, such as the co-existence-reduced accessibility theory and the source misattribution theory (Lindsay & Johnson, 1989), the findings suggest that a trace strength theory, as originally suggested by Loftus, might be helpful in explaining our results.

In conclusion, the present findings indicate that many factors should be considered in trying to understand the effects of misinformation on children's memory. The present data point to the importance not only of age but also of: a)

the mode of presentation of the original event, b) the type of information in question, and c) the type of test used to tap memory. The interaction of all these factors, and probably several others, should be considered in trying to understand the influence of misinformation on children's memories.

References

Belli, R. F. (1989). Influences of misleading information: Misinformation interference and acceptance. Journal of Experimental Psychology: General, 118, 72-85.

Ceci, S. J., Ross, D. F., & Toglia, M. P. (1987). Suggestibility of children's memory: Psycholegal implications. Journal of Experimental Psychology: General, 116, 38-49.

Goodman, G. S., Bottoms, B. L., Schwartz-Kenney, B. M., & Rudy, L. (1991). Children's testimony for a stressful event: Improving children's reports. Journal of Narrative and Life History, 1, 69-99.

Lindsay, D. S., & Johnson, M. (1989). The eyewitness suggestibility effect and memory for source. Memory and Cognition, 17, 349-358.

Loftus, E. F. (1979). Eyewitness testimony. Cambridge, MA: Harvard University Press.

McCloskey, M., & Zaragoza, M. S. (1985). Misleading postevent information and memory for events: Arguments and evidence against memory impairment hypothesis. Journal of Experimental Psychology: General, 114, 1-16.

Zaragoza, M. S., & Wilson, D. (1989, April). Suggestibility of the child witness. In G. S. Goodman (Chair), Do children provide accurate reports?: Social policy and research implications. Symposium presented at the Society for Research in Child Development Meeting, Kansas City, MO.

Zaragoza, M. S. (1987). Memory, suggestibility and eyewitness testimony in children and adults. In S. J. Ceci, M. P. Toglia, & D. F. Ross (Eds.) Children's eyewitness memory (pp. 53-78). NY: Springer-Verlag.

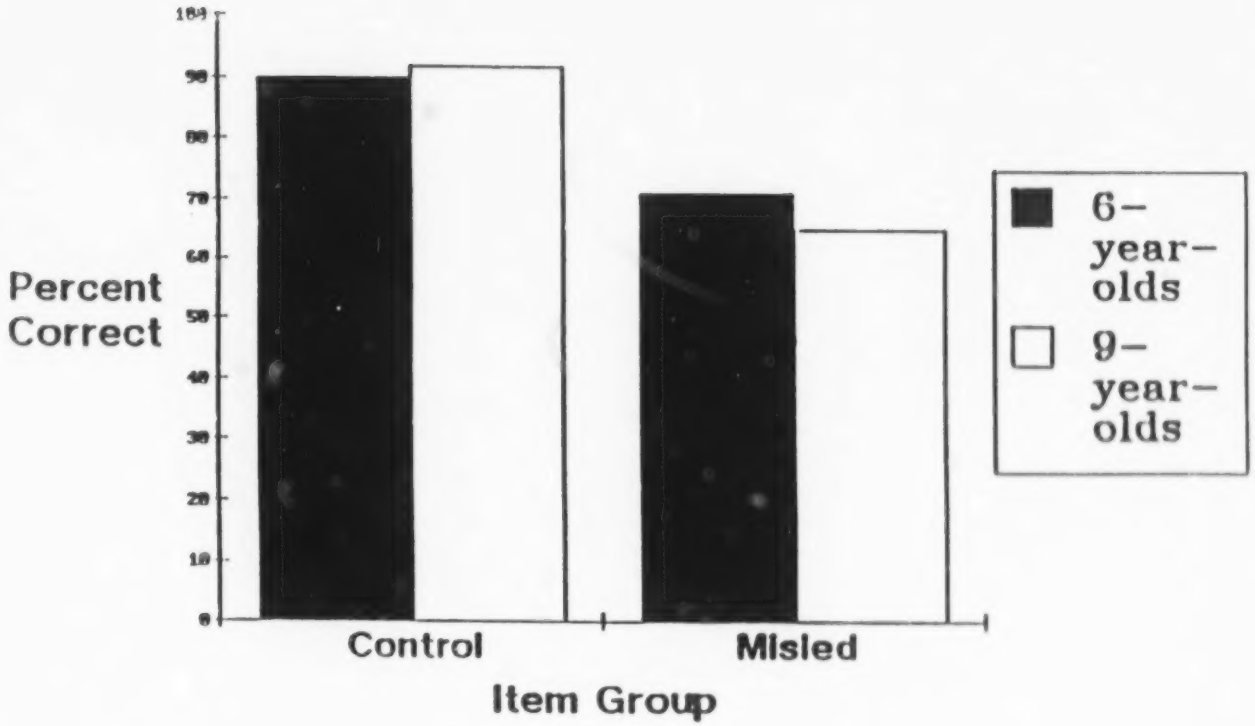

Figure 1. Mean proportion of correct responses on the yes/no task to event items as a function of item group and age group.

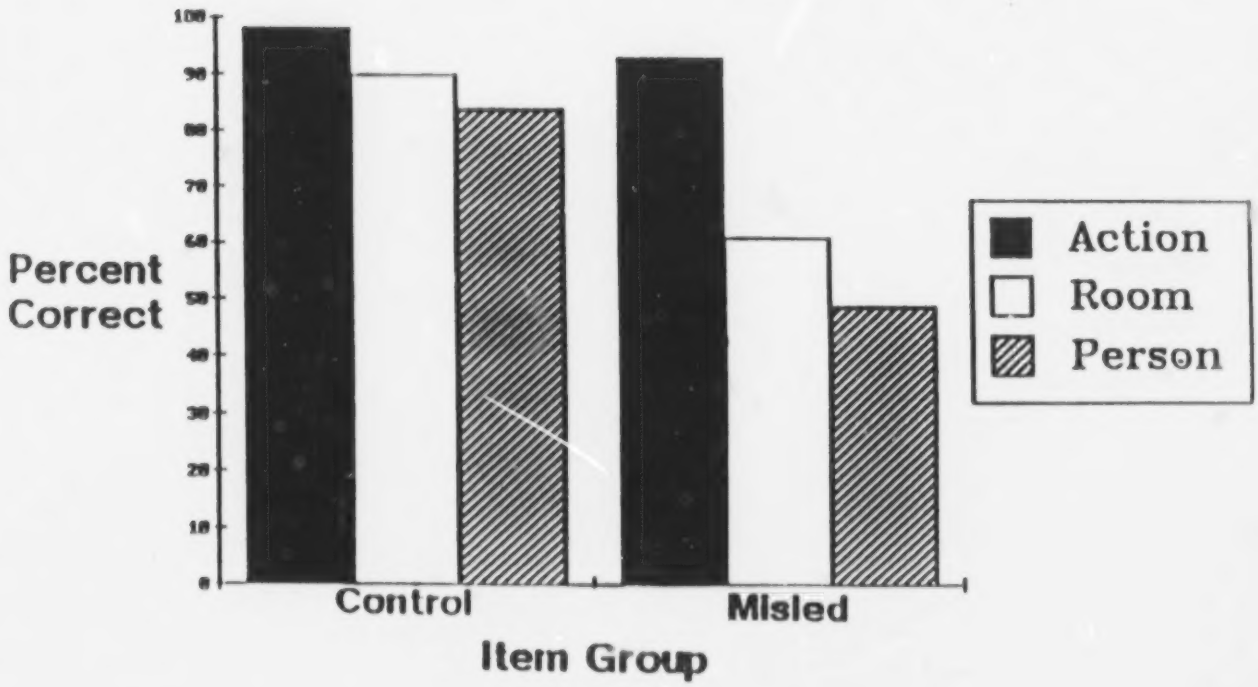

Figure 2. Mean proportion of correct responses on the yes/no task to event items as a function of item group and type of information.

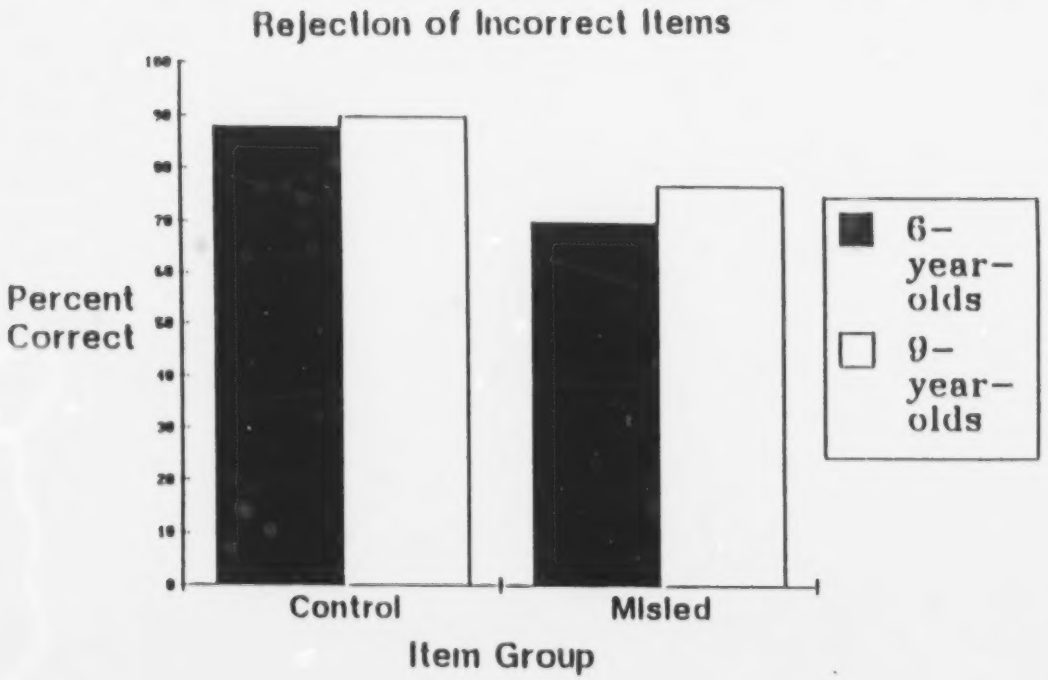

Figure 3. Mean proportion of incorrect responses on the yes/no task to suggested items and control novel items as a function of item group and age group.

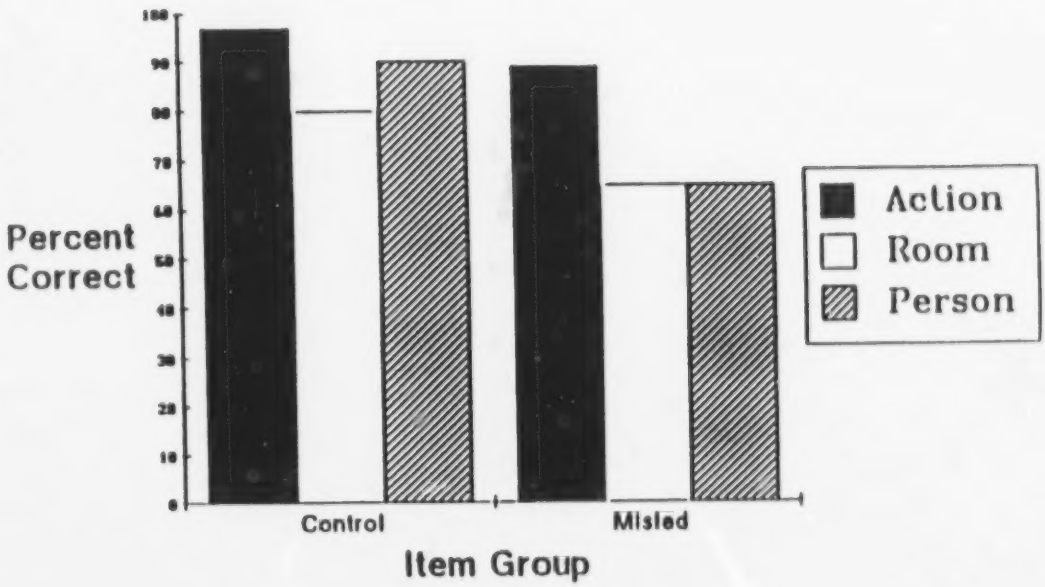

Figure 4. Mean proportion of incorrect responses on the yes/no task to suggested items and control novel items as a function of item group and type of information

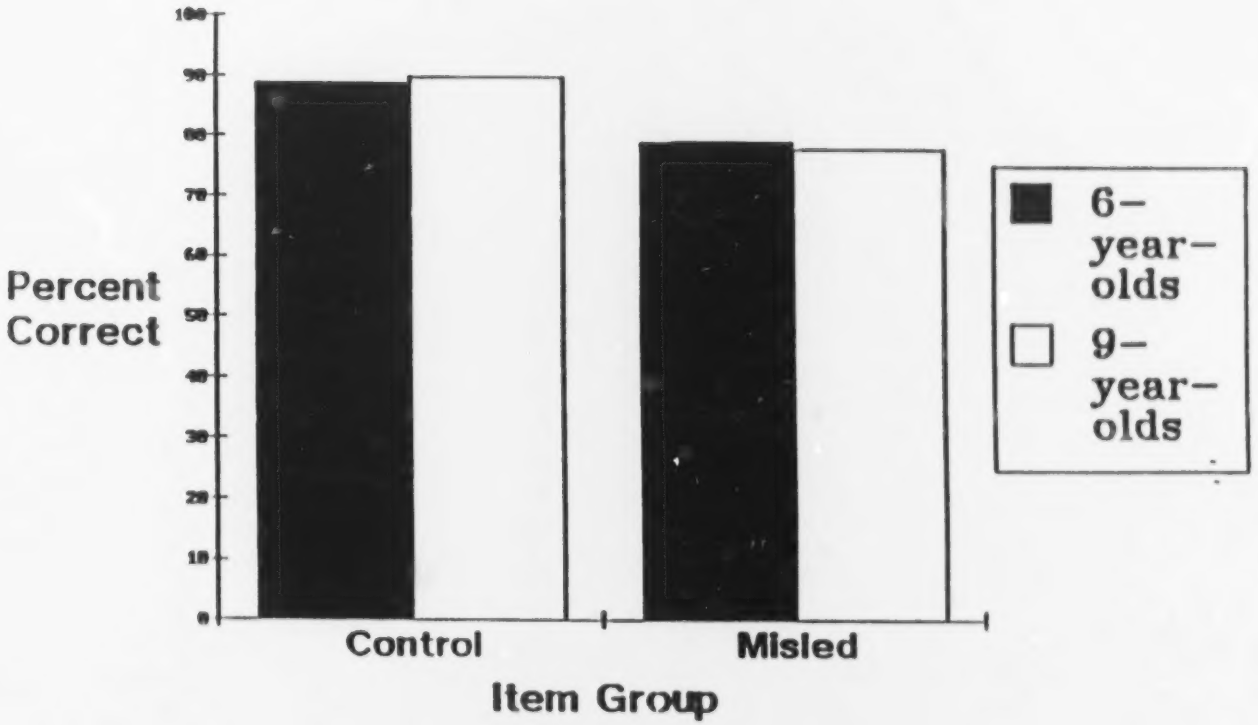

Figure 5. Mean proportion of correct responses on the yes/no task to event and novel items combined as a function of item group and age group

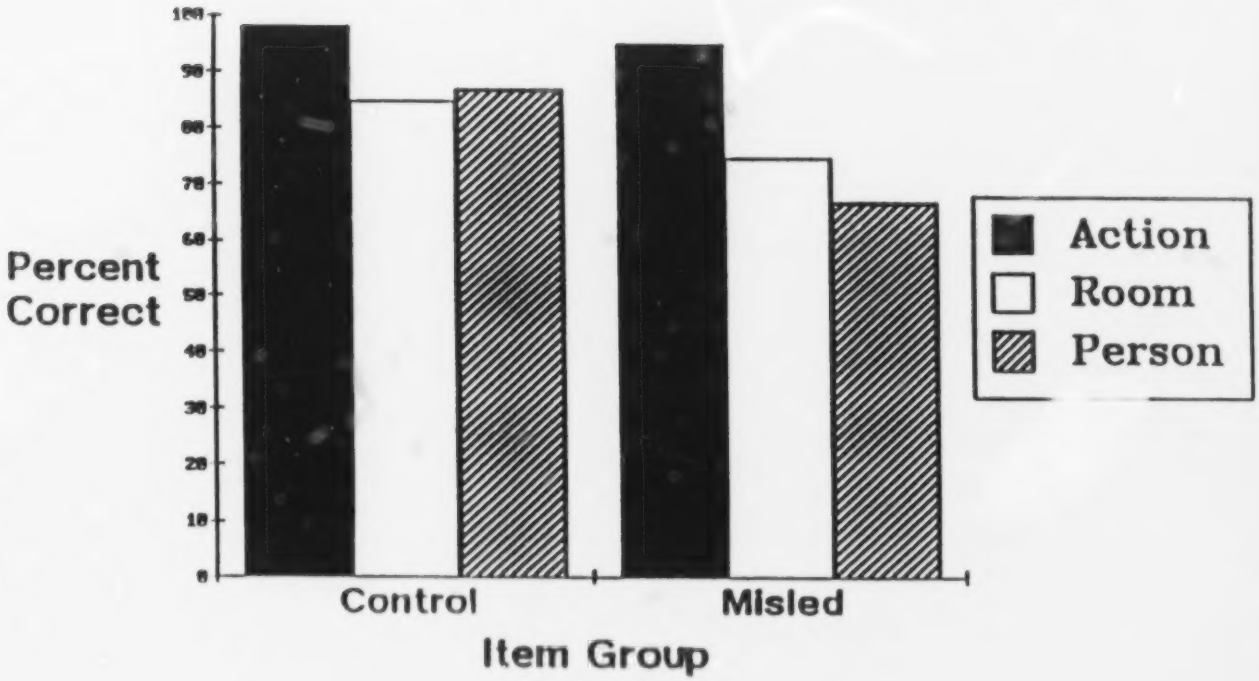

Figure 6. Mean proportion of correct responses on the yes/no task to event and novel items combined as a function of item group and type of information

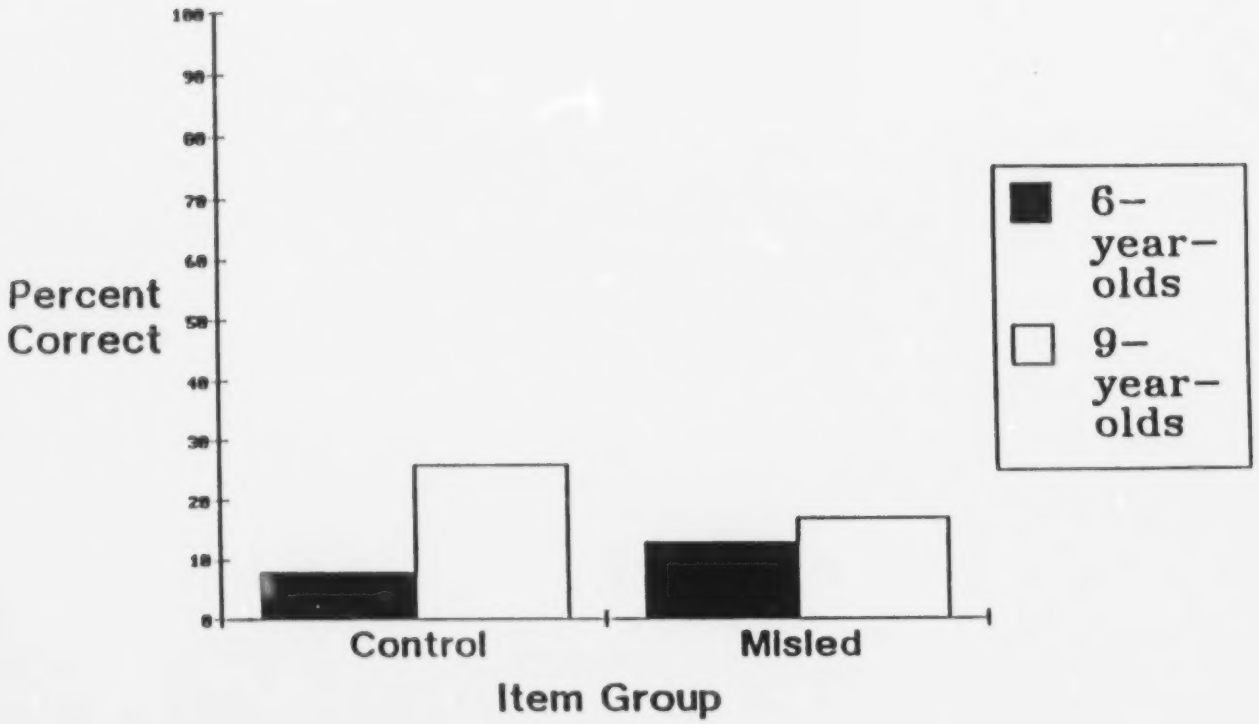

Figure 7. Mean proportion of correct responses on the free-recall task as a function of item group and age group.

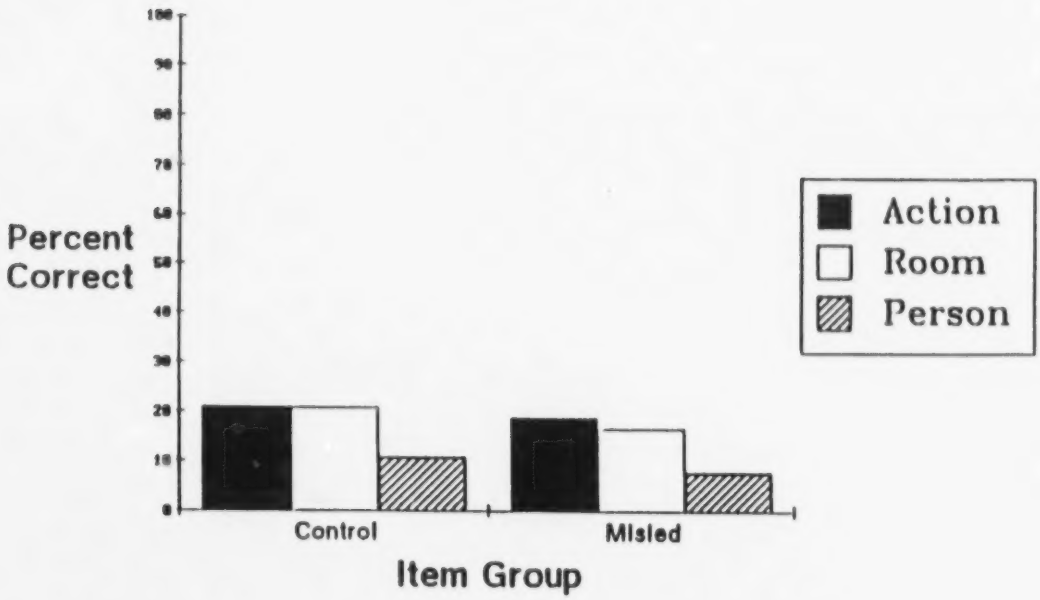

Figure 8. Mean proportion of correct responses on the free-recall task as a function of item group and type of information.

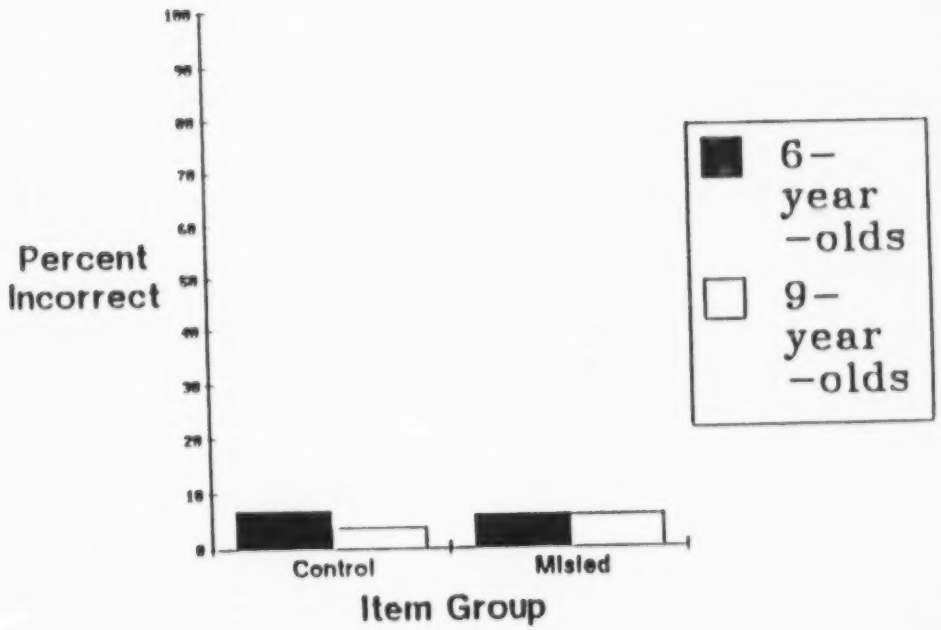

Figure 9. Mean proportion of incorrect responses on the free recall task as a function of item group and age group.

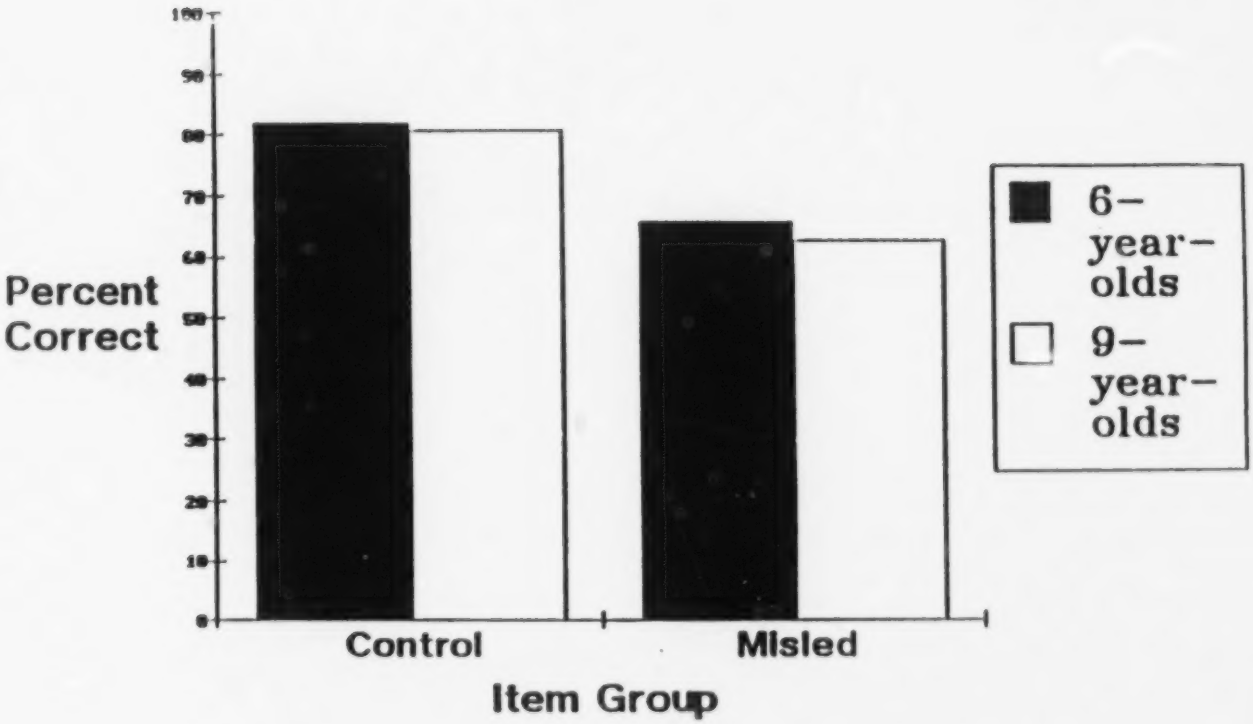

Figure 10. Mean proportion of correct responses on the prop-selection task as a function of item group and age group.

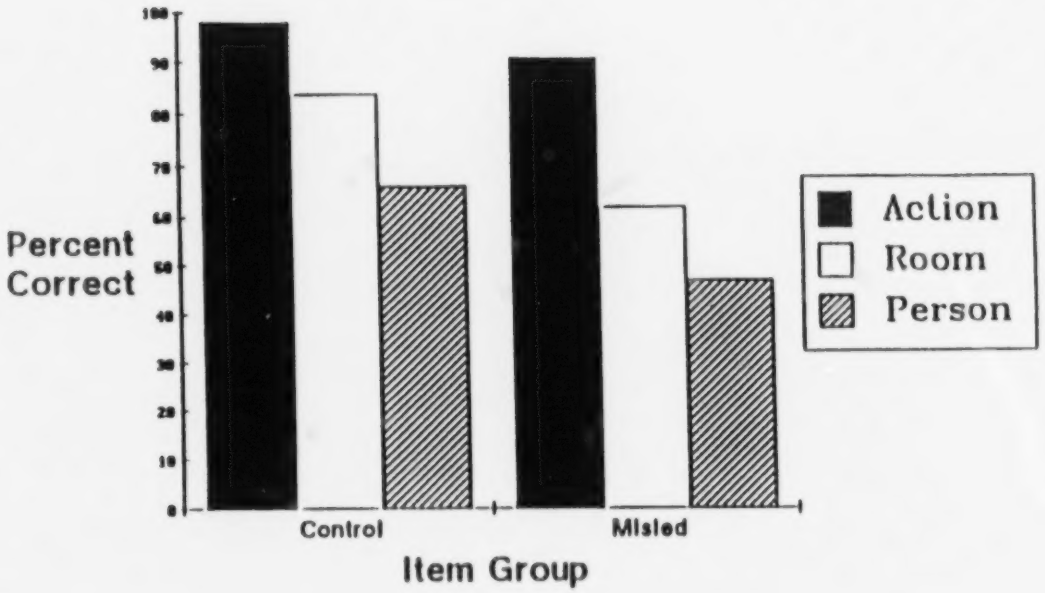

Figure 11. Mean proportion of correct responses on the prop-selection task as a function of item group and type of information.

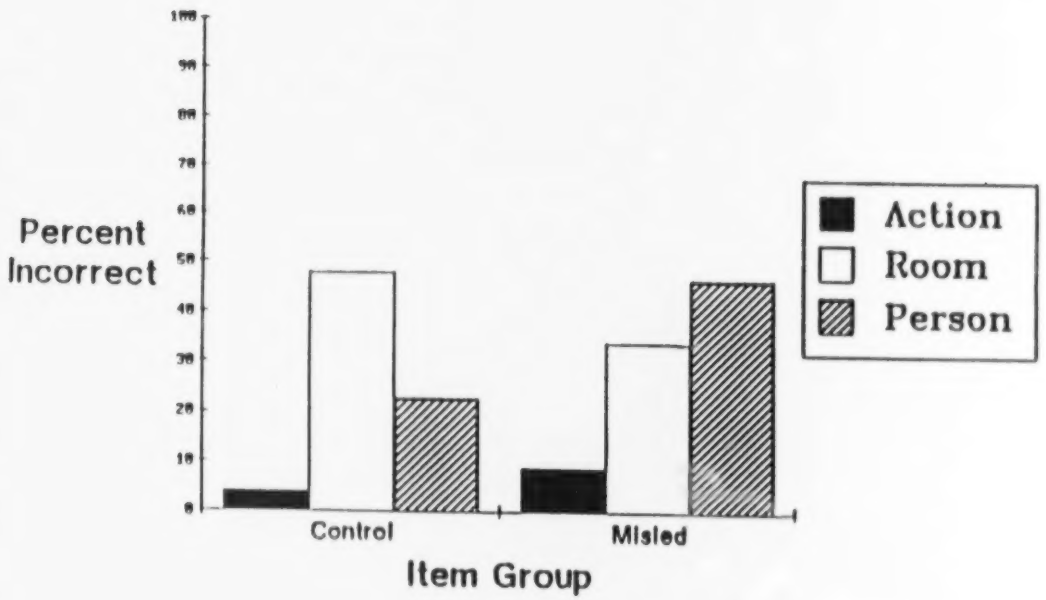

Figure 12. Mean proportion of incorrect responses on the prop-selection task as a function of item group and type of information.